MEMO

DATE: August 30, 2007

TO: Energy and Environment Committee

FROM: Jonathan Nadler, Program Manager, (213) 236-1884; nadler@scag.ca.gov

SUBJECT: Draft Concept Paper: Emission Reductions from Goods Movement Sources

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BACKGROUND:
As part of the on-going efforts to develop strategies to address emissions associated with goods movement activities, staff has developed a Concept Paper which explores the use of a pricing/market/incentive based approach to achieving emission reductions. Based on the outcome of the September 27, 2007 Air Resources Board Hearing on the Ozone and PM2.5 State Implementation Plan for the South Coast Air Basin, staff will reevaluate the necessity to further explore the concepts identified in the Concept Paper. A general overview of the issue and control approach is presented below.

CONCEPT PAPER OVERVIEW:
The federal Clean Air Act sets forth national ambient air quality standards (NAAQS) for specific criteria pollutants, including ozone and PM2.5 (particulate matter smaller than 2.5 microns). As clearly demonstrated by the current Air Quality Management Plan (AQMP) and State Implementation Plan (SIP) planning efforts, there are extreme challenges to demonstrating attainment of these standards and consideration of a new approach to air quality planning is needed.

The emission sources of PM2.5 and its precursors are primarily goods movement and construction equipment. A substantial portion of emissions contributing to ozone are also from these sources. A major part of the challenge in developing a credible attainment strategy is that the emissions from goods movement sources are primarily under the jurisdiction of federal and/or state agencies and local governments have limited authority to regulate them. An additional challenge is the tremendous growth in international and domestic trade and the emissions associated with this growth. If we do not develop a creditable emissions control plan that includes aggressive control of goods movement sources, however, the significant adverse health impacts will continue and be further exacerbated, and the provisions of the Clean Air Act can and will stop implementation of needed access capacity programs.

The region is currently relying on federal and state control measures that are largely based on national and statewide considerations and schedules. Using this approach, attaining the annual PM2.5 standard by 2014 will be a daunting challenge, and air quality plans have not identified all emission measures needed to attain the 24-hour PM2.5 standard by the 2019 deadline, or the 8-hour ozone standard by the 2023 deadline. The implications of failure are extraordinary given the health impacts of these pollutants, especially PM2.5.

The federal Clean Air Act provides additional approaches that could enable a region to resolve a challenge of this magnitude and significance. The federal statute authorizes states and regions to use fees and other market mechanisms. Properly defined, these approaches could act as incentives to implement the transformational programs and initiatives that will be needed to generate the required emission reductions.

The strategy would set emission reduction targets for all sources of the freight movement systems and use a pricing structure to incentivize the reductions. For example, airplane landing or ship docking fees could be based on emission levels which would incentivize the use of cleaner engines. The fees would then be used to obtain emission reductions from these or, potentially, other sources. The expectation is that this strategy would expedite the use of advance technologies in the near-term and ultimately modify or replace the existing diesel-powered goods movement systems in the longer-term.

The program would be designed to complement other air quality programs, and would augment and work in concert with programs being developed by the ports and the state legislature. The program could be implemented by the AQMD, ARB or other entities determined through the development process.

SCAG is willing to work with AQMD on developing pricing/market/incentive mechanisms for goods movement sources (i.e., ships, trains, trucks, and aircraft) through issue papers released for public review and comment. Based on the public vetting of this approach to emission control and infrastructure improvement, the mechanism could potentially be developed as a transportation measure similar to the proposed goods movement control measures and included as part of the 2007 Regional Transportation Plan. If approved by the Regional Council, these measures could be presented to AQMD and ARB for incorporation into the SIP.

FISCAL IMPACT:
Staff support for air quality planning and policy is covered under the Air Quality and Conformity staff work elements included in the current year overall work program (08-025.SCGS1 and 08-020.SCGS1).

Reviewed by:

Division Manager

Reviewed by:

Department Director

Reviewed by:

Chief Financial Officer

The federal Clean Air Act sets forth national ambient air quality standards (NAAQS) for specific criteria pollutants, including ozone and PM2.5 (particulate matter smaller than 2.5 microns). As clearly demonstrated by the current Air Quality Management Plan (AQMP) and State Implementation Plan (SIP) planning efforts, there are extreme challenges to demonstrating attainment of these standards and consideration of a new approach to air quality planning is needed.

PM2.5 and Ozone Emission Inventories

In regard to PM2.5, which has been linked to over 5,000 premature deaths per year in the South Coast Air Basin, the SIP as currently constituted falls short of the necessary reductions of NOx (a precursor to PM2.5) by approximately 63 tons per day. The attainment date for the annual PM2.5 standard is a short seven years away and there is no provision in the Clean Air Act that allows for undefined measures (e.g., "black box" measures).

	PM2.5 Inventory (Annual Average; Tons/Day)			
	NOx	VOC	SOx	PM2.5
Year 2008 Baseline	854	608	41	102
Year 2014 Baseline	654	528	43	102
Needed Reductions from 2014 Baseline	192 (29%)	59 (11%)	24 (56%)	14 (14%)

In addition, the recently promulgated 24-hour PM2.5 standard, with estimated SIP submittal and attainment dates of 2012 and 2019, respectively, will require substantially greater reductions than the annual standard; in fact, the reductions will be greater than that needed for the ozone standard in 2023.

In regard to ozone, the AQMP cannot at this time define how to achieve approximately 180 tons per day of NOx necessary to demonstrate attainment by 2023. Further, the U.S. EPA is currently reviewing and may tighten the ozone standard possibly necessitating substantially greater reductions.

	Ozone Inventory (Summer Planning; Tons/Day)	
	NOx	VOC
Year 2008 Baseline	853	644
Year 2023 Baseline	506	536
Needed Reductions from 2023 Baseline	383 (76%)	116 (22%)

Emissions Sources

The emission sources of PM2.5 and its precursors are primarily goods movement and construction equipment. A substantial portion of emissions contributing to ozone are also from these sources. A major part of the challenge in developing a credible attainment strategy is that the emissions from goods movement sources are primarily under the jurisdiction of federal and state agencies and local governments have limited authority to regulate them. An additional challenge is the tremendous growth in international and

domestic trade and the emissions associated with this growth. If we do not develop a creditable emissions control plan that includes aggressive control of goods movement sources, however, the significant adverse health impacts will continue and be further exacerbated, and the provisions of the Clean Air Act can and will stop implementation of needed access capacity programs.

Emissions from sources associated with the ports - marine vessels, harbor craft, cargo handling equipment, locomotives, and trucks - have historically been regulated primarily by international, federal or state authorities. The International Maritime Organization (IMO), an agency of the United Nations, has established NOx emissions limitations and fuel sulfur specifications for oceangoing vessels; the federal Environmental Protection Agency (EPA) has adopted emission standards for new locomotives, new trucks and some vessels; and the California Air Resources Board (ARB) has adopted standards for new trucks and recently voted to adopt standards for cargo handling equipment and marine auxiliary engine fuels. Neither federal nor international law explicitly require EPA or IMO regulations to be sufficiently stringent to meet the needs of a particularly polluted region such as South Coast, and the rules adopted by those bodies have not met those needs.

Program Development Strategy

The region has adopted a proposed SIP for PM2.5 for 2014. The South Coast Air Quality Management District (AQMD) is requesting that ARB develop strategies that would make up approximately 63 tons per day of needed NOx reductions. There are ongoing negotiations to determine the possibility of these proposed strategies. Even if ARB includes control strategies in the SIP to cover the shortfall, there is considerable challenge to adopt and implement some of the proposed measures and achieve the necessary reductions, especially from the legacy fleet of older, higher polluting on- and non-road diesel engines.

The AQMD has also developed an ozone attainment plan which relies on a NOx control strategy with a "bump-up" to the year 2023 and a black box, i.e., unspecified control measure to conceptually show attainment. The existing adoption strategies of these plans make evident the difficulty in demonstrating how the region can attain the PM2.5 standard in 2014 and the ozone standard in 2023. The current planning cycle does not address the 24-hour PM2.5 standard, but it is apparent that the region is woefully short of identifying reductions to attain this standard by 2019. The status-quo adoption strategy that relies on inter-governmental assignment of responsibility will not start the transformative program that is needed; delays is starting such a process severely undermines the potential for success.

The region is currently relying on federal and state measures that are largely based on national and statewide considerations and schedules. Using this approach, attaining the annual PM2.5 standard by 2014 will be a daunting challenge, and air quality plans have not identified all emission measures needed to attain the 24-hour PM 2.5 standard by the

2019 deadline, or the 8-hour ozone standard by the 2023 deadline. The implications of failure are extraordinary given the health impacts of these pollutants, especially PM2.5.

Attainment of the federal health-based standards will be achievable only if emissions from all sources are aggressively reduced, including those controlled by the federal and state governments. Only a transformational implementation program - a program that will immediately incentivize new technologies and new fuels - will be successful; controls that are based solely on the implementation of best control technologies currently being utilized in the transportation sector will not achieve the needed reductions.

Authority to Regulate

It is recognized that the AQMD holds a unique position, both legally and practically, to influence control of emissions from the goods movement system. Under state law, the AQMD is —

> "the sole and exclusive local agency within the South Coast Air Basin with the responsibility for comprehensive air pollution control, and it shall have the duty to represent the citizens of the basin in influencing the decisions of other public and private agencies whose actions might have an adverse impact on air quality in the basin." (Ca. Health & Safety Code § 40412)

Further, AQMD has specified authorities for indirect source controls ("facility, building, structure, installation, real property, road or highway which attracts, or may attract, mobile sources of pollution."), operational limit controls for non-vehicular sources, sulfur fuels limit controls for non-road engines, and other authorities for non-vehicular sources. As is discussed below, the federal Clean Air Act also authorizes air quality plans to include economic incentive provisions. Other government entities may also be able to implement such measures.

Using these existing and potentially additional authorities, AQMD (or other government entities) could promulgate an alternative control strategy based on economic incentives which would complement the existing command and control rules and other regulations of mobile sources to achieve the additional emission reductions necessary to demonstrate attainment of the existing and upcoming ozone and PM2.5 standards.

Fee and Incentive Mechanisms

The purpose of an economic incentive strategy would be the attainment of the ozone and fine particulate standards and the improvement of public health in communities impacted by the goods movement sector as well as enhancing the efficiency and performance of the goods movement system. One intention of such a strategy is to incentivize the development of cost-effective strategies, including the development and deployment of transformative technologies. If the region is to meet the existing and future NAAQS as well as the greenhouse gas reduction benchmarks set forth in AB32, it is imperative that we develop a new paradigm for generating the investments necessary to develop and deploy transformative fuel and vehicle/engine technologies.

The federal Clean Air Act contains an implementation framework that could enable a region to resolve a challenge of this magnitude and significance. Section 7410(2)(A) provides additional approaches to achieve standards that could address the challenges that the South Coast faces.

The federal Clean Air Act 42 U.S.C.A. Section 7410(2)(a) states in pertinent part:

> "Each implementation plan submitted by a State under this chapter shall be adopted by the State after reasonable notice and public hearing. Each such plan shall--(A) include enforceable emission limitations and other control measures, means, or techniques (*including economic incentives such as fees, marketable permits, and auctions of emissions rights*), as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this chapter." (Emphasis added.)

Thus, the federal statute authorizes states and regions to use fees and other market mechanisms. Properly defined, these approaches will act as incentives to implement the transformational programs and initiatives that will be needed to generate the required emission reductions.

Strategy and Implementation Framework

The strategy would set emission reduction targets for all sources of the freight movement systems and use a pricing structure to incentivize the reductions. For example, airplane landing or ship docking fees could be based on emission levels which would incentivize the use of cleaner engines. The fees would then be used to obtain emission reductions from these or, potentially, other sources.

The expectation is that this strategy would expedite the use of advance technologies in the near-term (e.g., advanced controls for marine vessels and locomotives such as SCR and diesel particulate filters) and ultimately modify or replace the existing diesel-powered goods movement systems in the longer-term (e.g., non-diesel powered dedicated freight guideway systems).

The program would be designed to complement other air quality programs, and would augment and work in concert with programs being developed by the ports and the state legislature (e.g. SB 927, Lowenthal). The program could be implemented by the AQMD, ARB or other entities determined through the development process.

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